

REMARKS

By the present amendment, claims 8 and 9 have been canceled without prejudice or disclaimer of the subject matter thereof and new claims 10 and 11 corresponding respectively to claims 8 and 9 and reciting the features of claims 8 and 9 in a means plus function format as sanctioned by the sixth paragraph of 35 USC 112 have been presented. Applicants note that while the Examiner apparently contends that apparatus must be distinguished from the prior art in terms of structure rather than function, this position is contrary to 35 USC 112, sixth paragraph and fails to give proper consideration to functional limitations in a claim as required by MPEP §2173.05(g) which provides that a functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art and the context in which it is used. As noted, a functional limitation is often used in association with an element to define a particular capability or purpose that is served by the recited element. It is noted, however, by the present amendment, the claims have been written in means plus function format and applicants submit that the means for performing a function as recited, must be given proper consideration.

As to the rejection of claims 8 and 9 under 35 USC 103(a) as being unpatentable over Doi (JP 2000-323298-A) in view of Demos et al (US 2001/0008138 A1), Pu et al (US 2001/0054383) and Drewery et al (US 6,287,435), this rejection is traversed insofar as it is applicable to the present claims and reconsideration and withdrawal of the rejection are respectfully requested.

As to the requirements to support a rejection under 35 USC 103, As to the requirements to support a rejection under 35 USC 103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed

out that the PTO has the burden under '103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the recent decision of In re Lee, 61 USPQ 2d 1430 (Fed. Cir. 2002) wherein the court in reversing an obviousness rejection indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge".

The court pointed out:

The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion. (emphasis added)

Turning to new claim 10, for example, such claim is directed to an apparatus for plasma processing of a non-volatile material and recites the feature of the apparatus comprising means for performing aging treatment, for performing plasma processing of nonvolatile material and for performing cleaning treatment. Such apparatus is illustrated in Figure 1 of the drawings of this application with the apparatus performing the treatment as illustrated in Fig. 5D of the drawings of this application. As described, the performing means includes a vacuum vessel made of alumina forming a plasma producing part, gas supply means for supplying gas to the vacuum vessel, an antenna for generating an electric field in the plasma producing part, a Faraday shield provided at an outer periphery of the vacuum vessel, high frequency electric source means for supplying high-frequency electric power to at least one of the antenna and the Faraday shield, and an end point determination and detecting means.

As recited in claim 10, the performing means for performing aging treatment includes transfer means for transferring a dummy wafer to an electrode which supports the dummy wafer in the vacuum vessel, for effecting aging treatment when gas supply means supplies gas to the vacuum vessel and the high-frequency electric source means supplies voltage to the Faraday shield. This feature and operation is described in the paragraph at page 11, lines 10 - 25 which describes the performance of an aging treatment prior to plasma processing of the nonvolatile material by feeding a dummy wafer to the electrode 5 and effecting plasma discharge mainly composed of chlorine gas under application of a voltage of at least 500V to the Faraday shield so as to carry out the aging treatment to diminish the foreign matters in the vacuum vessel.

Claim 10 further recites the feature that the performing means performs plasma processing of the nonvolatile material by the gas supplying means supplying gas to the vacuum vessel and the high-frequency electric source means supplying voltage to the antenna and the Faraday shield after performance of the aging treatment whereby reaction products are generated in the vacuum vessel and are deposited on the inner wall of the vacuum vessel. The plasma processing corresponds to the indication of etching treatment as shown in Fig. 5D and described in the specification of this application.

Furthermore, claim 10 also recites the feature that the performing means performs cleaning treatment of the vacuum vessel after performance of the plasma processing by the gas supply means supplying gas containing at least boron trichloride and chlorine to the vacuum vessel and the high-frequency electric source means supplying a voltage of at least 500V to the Faraday shield so as to clean the inner wall of the vacuum vessel and the end point determination and detecting means detecting the end point of cleaning of the inner wall of the vacuum vessel by detecting emission wavelength of reaction products when the cleaning of the vacuum vessel is effected. Applicants note that the cleaning with a mixed gas comprising boron trichloride and chlorine is described at page 17 of the specification, for example, with pages 14 and 15 describing the application of the voltage to the Faraday shield and the end point determination and detection.

Claim 11 recites similar features as recited in claim 10, and applicants submit that the claims recite structural features of an apparatus operating in a particular manner in a means plus function format, which features are not disclosed or taught in the cited art.

Applicants submit that irrespective of the individual disclosures of the cited art, of which the Examiner has recognized deficiencies, the cited art taken alone or in any combination fails to disclose or teach means for performing aging treatment, for performing plasma processing of nonvolatile material and for performing cleaning treatment as recited in the claims of this application.

With respect to Doi et al , the Examiner recognizes that Doi et al fail to teach an end point determination and detection device wherein the device detects the end point of cleaning of the inner wall of the vacuum vessel by detecting emission wavelength of reaction products or a material of the vacuum vessel. Furthermore, while the Examiner contends that the apparatus of Doi et al includes gas source containing boron trichloride and chlorine in etching, there is no disclosure or teaching in Doi et al that the means for performing cleaning supplies a gas of boron trichloride and chlorine to the vacuum vessel while applying a voltage of at least 500V to the Faraday shield during the cleaning operation. Applicants note that (paragraph 0066) of Doi et al does not indicate that boron trichloride and chlorine are utilized in combination, and if considered to be utilized in combination are only disclosed for etching, and not for cleaning. Also, it is apparent that Doi et al does not disclose a vacuum vessel made of alumina nor the etching of nonvolatile material. Additionally, it is apparent that Doi et al fails to disclose or teach means for performing aging treatment including transfer means for transferring a dummy wafer to an electrode which supports the dummy wafer in the vacuum vessel for effecting aging treatment when gas supply means supplies gas to the vacuum vessel and the high-frequency electric source means supplies voltage to the Faraday shield. Furthermore, Demos et al does not overcome the other deficiencies of Doi et al as pointed out above. Also, Doi et al fails to disclose or teach that the apparatus or means performs aging

treatment, plasma processing of nonvolatile material, and cleaning treatment in such order which are all considered to be functional limitations written in means plus function format and which must be given proper consideration. Thus, applicants submit that claims 10 and 11 patentably distinguish over Doi et al in the sense of 35 USC 103.

With respect to Demos et al, irrespective of whether or not Demos et al discloses an optical emission detection device for monitoring and detecting an end point of a cleaning process, Demos et al does not disclose the performance of cleaning treatment by supplying gas containing at least boron trichloride and chlorine and supplying a voltage of at least 500V to the Faraday shield. Irrespective of the citations by the Examiner concerning the lack of consideration of functional limitations in an apparatus, applicants submit that the sixth paragraph of 35 USC 112, requires the consideration of the functions when set forth in a means plus function format as set forth in the claims of this application. As such, applicants submit that the combination of Doi et al and Demos et al fail to provide the claimed features as set forth in claims 10 and 11 of this application and such claims patentably distinguish thereover.

With respect to the addition of Pu et al, the Examiner cites Pu for the disclosure of a dielectric top lid of alumina. Irrespective of this disclosure, applicants submit that the combination represents a hindsight reconstruction attempt and fails to provide the recited features of means for performing aging treatment, for performing plasma processing and for performing cleaning treatment in the manner recited in the claims of this application, such that applicants submit that claims 10 and 11 patentably distinguish over this proposed combination of references in the sense of 35 USC 103 and should be considered allowable thereover.

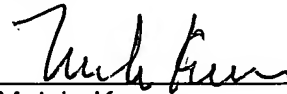
As to the addition of Drewery et al, whether or not it is considered that this patent discloses a transfer means, it is readily apparent that Drewery et al does not disclose that the transfer means is part of means for performing an aging treatment and does not disclose or teach that the means for performing aging treatment includes transfer means for transferring a dummy wafer to an electrode which supports the dummy wafer for effecting aging treatment when gas supply means supplies gas to the vacuum vessel and the high-frequency electric source means supplies voltage to the Faraday shield. It is readily apparent that Drewery et al also fails to overcome the deficiencies of the other cited art, taken alone or in combination as discussed above. Thus, applicants submit that claims 10 and 11 also patentably distinguish over this proposed combination of references in the sense of 35 USC 103 and should be considered allowable thereover.

In view of the above amendments and remarks, applicants submit that all claims present in this application should now be in condition for allowance and issuance of an action of favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 500.41295X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

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